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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/608,395	06/30/2000	Per-Ake Larson	MS1-479US	9668

22801   7590   05/19/2005

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EXAMINER
NGUYEN, CINDY

ART UNIT	PAPER NUMBER
2161	.

DATE MAILED: 05/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	**Applicant(s)**
Office Action Summary	09/608,395	LARSON ET AL.
	Examiner	**Art Unit**	
	Cindy Nguyen	2171	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>16 March 2005</u> .

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-6, 8, 9 ,11,24 and 25</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-6,8,9,11,24 and 25</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>30 June 2000</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____ .

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)	4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) ☐ Notice of Informal Patent Application (PTO-152)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .	6) ☐ Other: .

DETAILED ACTION

This is in response to amendment filed on 03/16/05.

Response to Arguments

Applicant's arguments, have been fully considered and are persuasive. The

previous of the objections has been withdrawn.

1.   Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 1, 11 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Leo (U.S.5781896) in view of Agrawal et al. (US 5832475) (Agrawal).

In consideration of claim 1, Leo discloses: A method and computer program for

processing a database query comprising:

Partially pre-aggregating records in a database (table) according to a single

grouping column[1] to provide a result that contains at least two records having like

grouping column value (col. 5, lines 7-20, Leo);

aggregating records derived from the partial pre-aggregation to provide a

result that contains records having unique grouping column values (col. 6, lines 55-67, Leo).

However, Leo didn't disclose: estimating the costs and benefits of the partial pre-agregation and partially pre-aggregating the records only if the estimating indicates that the benefits are greater than the costs. On the other hand, Agrawal discloses: estimating the costs and benefits of the partial pre-agregation and partially pre-aggregating the records only if the estimating indicates that the benefits are greater than the costs (col. 15, lines 1 to col. 16, lines 19, Agrawal). Thus, at the time invention was made, it would have been obvious to a person of ordinary skill in the art to include the steps for estimating the costs and benefits of the partial pre-agregation and partially pre-aggregating the records only if the estimating indicates that the benefits are greater than the costs in the system of Leo as taught by Agrawal. The motivation being to enable the system provided a number of statistical estimation procedures for estimating the number of distinct values for each Group-by, limit the time for the query steps.

Regarding claim 11, the limitations of this claim have been noted in the rejection of claim 1. Applicant's attention is directed to the rejection of claim 1 above. In addition Leo/Agrawal discloses: computer programmed to perform the method recited in claim 1 9 (see col. 2, lines 62-65, Leo).

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[1] A single grouping column as a distinct-key column.

Regarding claim 24, most of the limitations of this claim have been noted in

the rejection of claims 1 and 2.. In addition, Leo/Agrawal discloses: executable

instructions (see Fig. 7 and corresponding text, Leo), when executed on a computer,

perform the following steps: receiving a stream of input records (312, 327, fig. 3, Leo);

aggregating each input record in the stream as it is received to create a record

store (see col. 7, lines 49-57, Leo).

Outputting the records in the record store after the join (col. 7, lines 55-62,

Agrawal); Aggregating the records output from the join (col. 7, lines 55-62, Agrawal);

and

Determining if it is optimal to aggregate the input records prior to performing the

join (col. 7, lines 44 to col. 8, lines 2, Agrawal); performing the aggregation prior to the

join only if a determination is made that is optimal to perform an aggregation prior to the

join (col. 7, lines 44 to col. 8, lines 2, Agrawal)

Wherein the records output from the join include at least two records that have an

identical grouping column value in the single grouping column (col. 5, lines 8-20, Leo).

3.   Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
such that the subject matter as a whole would have been obvious at the time the invention was made to a
person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived
by the manner in which the invention was made.

4.   Claims 2-6, 8, 9, and 25 stand rejected under 35 U.S.C. 103(a) as being

unpatentable over Leo (U.S.5781896) in view of Sharma et al. (U.S. 5511190) (Sharma).

Regarding claim 2, all the limitations of this claim have been rejected in claim 1 in

addition, Leo/Agrawal discloses: wherein the partially pre-aggregating further

comprises:

maintaining a record store in memory , the record store having one record

for each different grouping column value encountered in the operation(col. 5, lines 56-

67, Leo);

Leo/Agrawal is silent as to the provision of receiving a new record after the final

aggregation step is performed. However, Sharma discloses receiving a new record (312, fig.

3, Sharma); combining the new record with a record having the same grouping column value,

if such a record exists (315, 316, fig. 3, Sharma); and adding the new record to the record

store in the memory if there is no record in the record store that has the same grouping

column value as the new record (317, fig. 3, Sharma). Because Leo's system is designed to

be repeated by a user and is dynamic in nature, it would have been obvious to one of

ordinary skill in the art to receive a new entry in Leo as taught by Sharma, so as to facilitate

continuous and expanded use of further search queries.

As per claim 3, the limitations of this claim have been noted in the rejection of claim 2.

Applicant's attention is directed to the rejection of claim 2 above. In addition,

Leo/Agrawal/Sharma disclose: adding additional new records to the record store until the

record store reaches a capacity such that it can accept no new records (see col. 10, lines 60 to

col. 11, lines 31, Sharma); outputting one or more records from the record store to a

subsequent database operator (see col. 327, fig. 3, Sharma). Therefore, at the time the

invention was made, it would have been obvious to a person of ordinary skill in the art to

include a method of processing the query steps of aggregation using hashing and partitioning

to process until there is no more free space in memory in Leo/Agrawal, as taught by Sharma.

The motivation being to have enabled a user to provide a method and system in a computer

system to identify grouping column contents into a result value for the identified grouping

column contents reducing the disk access overhead incurred in performing the aggregation.

Regarding claim 4, the limitations of this claim have been noted in the rejection of claim

3. Applicant's attention is directed to the rejection of claim 3 above. In addition, Leo/Agrawal

/Sharma discloses: wherein after the one or more records have been output to the subsequent

database operator, the adding and outputting are repeated until there are no new records to

process (see col. 11, lines 46-55, Sharma).

Regarding claim 5, the limitations of this claim have been noted in the rejection of

claim 4. Applicant's attention is directed to the rejection of claim 4 above. In addition,

Leo/Agrawal /Sharma discloses: wherein any records remaining in the record store after

there are no new records to process are output to the subsequent database operator

(327, fig. 3, Sharma).

Regarding claim 6, the limitations of this claim have been noted in the rejection of claim

3. Applicant's attention is directed to the rejection of claim 3 above. In addition, Leo/Agrawal

/Sharma discloses:. wherein the subsequent database operator is a join (group procedure in

fig. 3, Sharma).

Regarding claim 8, the limitations of this claim have been noted in the rejection of

claim 1. Applicant's attention is directed to the rejection of claim 1 above. In addition

Leo/Agrawal /Sharma discloses: wherein the partially pre-aggregating includes utilizing

a hashing function (see col. 10, lines 1-6, Sharma).

Regarding claim 9, the limitations of this claim have been noted in the rejection of

claim 1. Applicant's attention is directed to the rejection of claim 1 above. In addition

Leo/Agrawal /Sharma discloses: wherein the partial pre-aggregating creates a record

store in memory, and wherein the method further comprises utilizing the record store in

memory for one or more other database operators (aggregation, col. 11, lines 1-12,

Sharma).

As per claim 25, all the limitations of this claim have been noted in the rejection of

claims 3 and 24, above. It is therefore rejected as set forth above.

5.   Contact Information

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Cindy Nguyen whose telephone number is 703-305-4698. The

examiner can normally be reached on M-F: 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic can be reached on 703-308-1436. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7239 for regular communications and 703-746-7240 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Cindy Nguyen
May 6, 2005

FRANTZ COBY
PRIMARY EXAMINER